

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) ~~A System~~system for controlling and optimizing the emissions of a catalytic combustor in a gas turbine ~~(10)~~, the system comprising:
at least one calculation unit ~~(60) for implementing~~ configured to implement a mathematical model of the an operation of the said gas turbine (10), on the basis of a set of predetermined parameters, by means of which the, wherein the mathematical model links a flow rate of a bleed system to (i) an ambient temperature and (ii) a rotation of adjustable vanes that control a fluid entering a compressor, and the at least one calculation unit calculates the flow rate of the bleed system based on the ambient temperature and the rotation of the adjustable vanes such that aforesaid the emissions can beare optimized during variations of the operating conditions of thea turbine over a range of external environmental conditions from approximately -29°C to +49°C.
2. (Cancelled)
3. (Currently Amended) ~~The Control and optimization system according to~~

Claim 21, ~~wherein in which the input parameters of the said calculation unit (60)~~ additionally include the at least one calculation unit further uses a compressor inlet pressure and the an absolute humidity at the compressor inlet to calculate the flow rate of the bleed system, in order to provide greater accuracy.

4. (Currently Amended) ~~Control and optimization~~ The system according to Claim 21, wherein in which the values of the parameters on which the said calculation unit (60) operates are the at least one calculation unit uses values in the range from 0 to -50 degrees for the rotation of the adjustable vanes (~~IGV~~ (14)) and in the range from 0 to 5% of the flow rate (W2) for the bleed system (~~IBH~~), where {W2} is the flow rate of air drawn in by the compressor.

5. (New) The system of Claim 1, further comprising:
the compressor configured to draw a fluid at the predetermined flow rate W2;
the catalytic combustor connected to an outlet of the compressor and including a combustion region, a catalytic cell and a post-combustion region, wherein the combustion region is configured to mix and burn a compressed fluid flow from an exhaust of the compressor with a fuel flow; and
the turbine connected to the post-combustion region and configured to transform an enthalpy of the burned mixed of fluid from the compressor and the fuel flow into mechanical energy.

6. (New) The system of Claim 5, further comprising:
the adjustable vanes provided at an inlet of the compressor and configured to rotate to adjust a fluid flow entering the compressor.
7. (New) The system of Claim 6, further comprising:
the bleed system provided at an outlet of the compressor and configured to remove part of the fluid flow passing through the compressor.
8. (New) The system of Claim 7, wherein the removed part of the fluid flow passing through the compressor is returned to an inlet of the compressor.
9. (New) The system of claim 1, wherein the at least one calculation unit adjusts the flow rate of the bleed system such that a temperature (T3) at the compressor exhaust is maintained constant over the ambient temperature varying from approximately -29°C to +49°C.